

CLAIMS

What is claimed is:

1. A pallet container comprising:
 - a bottom pallet;
 - a thin-walled rigid inner thermoplastic receptacle for storage and transport of liquid or free-flowing contents; and
 - a cage jacket closely surrounding the receptacle and securely connected with the bottom pallet, wherein the cage jacket includes vertical and horizontal hollow bars welded together at points of intersection, wherein the hollow bars have a closed profile of trapezoid-shaped cross section, thereby defining a longer wall and a shorter wall in parallel relationship, and two straight walls extending obliquely relative to each other toward one another from the longer wall toward the shorter wall at an angle between 20° and 45°.
2. The pallet container of claim 1, wherein the angle is about 36°.
3. The pallet container of claim 1, wherein the trapezoid profile is defined by a height and a width, wherein the ratio between height and width is in the range between 0.8 and 1.0.
4. The pallet container of claim 3, wherein the ratio is about 0.86.

5. The pallet container of claim 1, wherein the longer wall of the trapezoid-shaped profile of the hollow bar is dimpled inwardly to define two outer longitudinal edges which are each formed with an outwardly projecting bulge so as to provide at each point of intersection of vertical and horizontal hollow bars four contact points which are firmly connected to each other after welding, whereby at each point of intersection of hollow bars confronting ones of said longer wall are still spaced from each other and without being in contact.
6. The pallet container of claim 1, wherein the longer wall of the trapezoid-shaped profile of the hollow bar is dimpled inwardly along an entire length of the hollow bar to define two outer longitudinal edges which are each formed with an outwardly projecting bulge so as to provide at each point of intersection of vertical and horizontal hollow bars four contact points which are firmly connected to each other after welding, whereby at each point of intersection of hollow bars confronting ones of said longer wall are still spaced from each other and without being in contact.
7. The pallet container of claim 1, wherein the longer wall of a one of the hollow bars of trapezoid-shaped cross section is inwardly dimpled in the area of a point of intersection with another one of the hollow bars of trapezoid-shaped cross section, whereby the longer wall of the other one of the hollow bars is inwardly dimpled along an entire length thereof.

8. The pallet container of claim 1, wherein the longer wall of a one of the hollow bars is spaced from a longer wall of another one of the hollow bars at a point of intersection by a distance of about 0.5 mm to 2 mm after the welding.
9. The pallet container of claim 8, wherein the distance is about 1mm.
10. The pallet container claim of claim 5, wherein a remaining portion of the longer wall between the bulged outer longitudinal edges has a same width as a width of the opposite shorter wall, as viewed in cross section of the trapezoid-shaped profile.
11. The pallet container claim of claim 6, wherein a remaining portion of the longer wall between the bulged outer longitudinal edges has a same width as a width of the opposite shorter wall, as viewed in cross section of the trapezoid-shaped profile.
12. The pallet container of claim 1, wherein the trapezoid-shaped profile of the hollow bars is provided with at least one dimple in the longer wall laterally at a distance to a welding point.
13. The pallet container of claim 12, wherein the dimple is spaced from the welding point by at least a distance of about one tenth of a width of the longer wall.

14. The pallet container of claim 1, wherein at least one of the longer wall and the shorter wall of the trapezoid-shaped profile of the hollow bars includes two dimples between two points of intersection.
15. The pallet container of claim 12, wherein the dimple has a depth which kept to a minimum to reduce a height of the trapezoid-shaped profile of the hollow bars.
16. The pallet container of claim 15, wherein the depth of the dimple is between 15% and 50% of the height of the trapezoid-shaped profile.
17. The pallet container of claim 15, wherein the depth of the dimple is about 33% of the height of the trapezoid-shaped profile.
18. The pallet container of claim claim 12, wherein the dimple has a length, as viewed in a longitudinal direction of the trapezoid-shaped profile, between about one and one half to three times a width of the trapezoid-shaped profile.
19. The pallet container of claim claim 18, wherein the length of the dimple is about twice the width of the trapezoid-shaped profile.

20. The pallet container of claim 1, wherein the longer wall and the shorter wall of the trapezoid-shaped profile of the hollow bars include each two dimples in precise opposite disposition, with one dimple positioned on one side next to a point of intersection and the other dimple positioned on the other side next to a point of intersection, whereby each of dimples has a distance of at least one tenth of a width of the trapezoid-shaped profile.
21. The pallet container of claim 1, wherein the hollow bars have formed therein dimples of varying depths in dependence on an intensity of dynamic vibrational stress encountered in locations selected from the group consisting of various sections of the cage jacket, and in the horizontal and vertical hollow bars.
22. A pallet container, comprising:
- a bottom pallet;
 - a thin-walled thermoplastic rigid inner receptacle for storage and transport of liquid or flowable content; and
 - a cage jacket closely surrounding the receptacle and securely connected with the bottom pallet, wherein the cage jacket includes horizontal hollow bars having 90° curved corner regions which are flattened in parallel direction and perpendicular direction with respect to a vertical direction.

23. The pallet container of claim 22, wherein the horizontal bars are flattened in the curved corner regions from at least one of inside and outside by at least one forth of a height of a cross section profile of the horizontal bars.